

Work Order ID 142097

February 25, 2016 9:33:26 AM

142097

Page 1

Item ID: D105-674-011

Accept

N900040100

Setup Start *NS1*

Revision ID:

Stop *NS2*

Item Name: Skidtube with Standard Wearplates Fits LH or RH, Matte Black

Start Date: 3/14/2016 Start Qty: 1.00 *1*

Cust Item ID:

Required Date: 3/24/2016 Req'd Qty: 1.00 *1*

Customer:

Reference:

20160225

Approvals: Process Plan: SKA Date: _____ Tooling: _____ Date: _____

Run Start *NR1*

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

Draw Nbr	Revision Nbr
D2966	Rev B

JAN 10 2017

DAS
6
9-89

DAS
21
9-89

1701-11

100

Document Control

0.00

100

DOCUMENT CONTROL

DC

Memo

0.00

Doc.Control -USB or Paperwork

Photocopy bluefile & type labels per PPP D105-674-011 CHG004

DAS
28
9-89

JAN 13 2017

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE

DART
AEROSPACE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐																																																													
Date :		Step #:		QTY Effective :				MRB (QS1042) Approval																																																									
Description Work Order Deviation				Disposition				Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval																																																									
Root Cause		FAULT CATEGORY																																																															
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐	Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐	Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐	Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐	Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐	Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐	Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐	Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐	LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐	Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐	Past Expiry Date ☐	Manufacturing Process ☐	OTHER :			
Misidentified ☐	Past Due ☐																																																																

Work Order ID 142097

February 25, 2016 9:33:26 AM

142097

Page 2

Item ID: D105-674-011

Accept

N900040100Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: Skidtube with Standard Wearplates Fits LH or RH, Matte Black

Start Date: 3/14/2016 Start Qty: 1.00 ***1***

Cust Item ID:

Required Date: 3/24/2016 Req'd Qty: 1.00 ***1***

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

130

0.00

130

Skidtubes

Skidtubes

Memo

0.01

** Pull D2966-1bent **

1- Cut Aft end as per dwg, remove bending marks and deburr ends. Scribe batch#.

2- Drill Aft Cap holes using DT8678, do not open to finished size.

3- Locate from aft caps pilot holes, install DT9982 pilot drill all crossbolt holes.

4- Clamp DT8679 to the tube. Drill all wearplate holes to 0.297". Open two side holes (1 per side) located at 8.89" from aft to 0.297". Deburr.

5- Open Aft Cap holes as per dwg

6- Two most fwd crossbolt holes must be laid out manually. ***VERIFY MEASUREMENTS BEFORE DRILLING. USING DT9937 AND DT9938

140

0.00

140

Skidtubes

Skidtubes

Memo

0.01

1-Weld Fwd Cap as per Dwg D2966 and QSI 004. Fill #40 Fwd cleco hole.
2-Grind Fwd Cap welds flush

Skidtubes

N/A

A/R M131562/M133816

1 0 16-3-2
BE 16-3-23

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
OTHER : ☐					

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐																																																													
Date :		Step #:		QTY Effective :				MRB (QS1042) Approval																																																									
Description Work Order Deviation				Disposition				Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval																																																									
Root Cause		FAULT CATEGORY																																																															
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐	Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐	Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐	Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐	Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐	Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐	Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐	Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐	LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐	Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐	Past Expiry Date ☐	Manufacturing Process ☐	OTHER :			
Misidentified ☐	Past Due ☐																																																																

Work Order ID 142097

February 25, 2016 9:33:26 AM

142097

Page 4

Item ID: D105-674-011

Accept

N900040100

Setup Start

NS1

Revision ID:

Stop

NS2

Item Name: Skidtube with Standard Wearplates Fits LH or RH, Matte Black

Start Date: 3/14/2016 Start Qty: 1.00

1

Cust Item ID:

Required Date: 3/24/2016 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals:

Process Plan: _____

Date: _____

Tooling: _____

Date: _____

Run Start

NR1

QC: _____

Date: _____

SPC (Y/N): _____

Date: _____

Stop

NR2Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

180

QC7-Inspect Chemical Conversion Coat

0.00

180

QC

Memo

0.00

Quality Control

190

Skidtubes

0.00

190

Skidtubes

Memo

0.02

Skidtubes

1- Open 14 holes to Ø0.750" & 2 holes to Ø0.875", countersink crossbolt holes
& remove alodine to prepare for welding as per Dwg D2966

2- Deburr holes inside & outside, blow out chips

16-3-10

16-3-10

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :				MRB (QSI042) Approval 	
Description Work Order Deviation				Disposition					
								Completed By	
								Lead hand / Supervisor Approval Verification	
								QC / QA Coordinator Approval	

Root Cause			FAULT CATEGORY							
Environment	☐	No Re-verification	☐	Pressure/Forced	☐	Temperature/Cure	☐	Power Loss/Surge	☐	Positioned Wrong
Design	☐	Operator	☐	Bending	☐	Set-up	☐	Folio/Program	☐	Outside Dimensions
Doc/Data	☐	Offset/Setup	☐	Centre Not Concentric	☐	BOM/Route	☐	Grain	☐	Over/Under tolerance
Equip/Tooling	☐	Supplier	☐	Cracks	☐	Broken/Damage/Defect	☐	Weld	☐	Part Incorrect
Handling/Pre	☐	Training	☐	Crimp/Kink/Ripple/Wave	☐	Inspection Incomplete/Unqualified	☐	Wrong Stock Pulled	☐	Part Lost/Missing
Material	☐	Use for Testing	☐	Cuffs	☐	Contamination	☐	Out of Sequence	☐	Part Moved
Internal Transport	☐	Poor Information	☐	Crushing	☐	Countersink	☐	Off-set	☐	Drawing
Tribal Knowledge	☐	Rushing	☐	Heat Treat	☐	Cut Too Short	☐	Mislabeled	☐	Finish
LOA	☐	Product Improvement	☐	Wave/Twist in Tube	☐	Instructions Incomplete/Unclear	☐	Fit/Function	☐	Misread
Substation	☐	Process Improvement	☐	Marks/Chatter	☐	Drill Holes	☐	Misaligned/off center	☐	Turning Sequence
Past Expiry Date	☐	Manufacturing Process	☐	OTHER :						
Misidentified	☐	Past Due	☐							

Work Order ID 142097

February 25, 2016 9:33:26 AM

142097

Page 5

Item ID: D105-674-011 Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: Skidtube with Standard Wearplates Fits LH or RH, Matte Black
Start Date: 3/14/2016 Start Qty: 1.00 ***1*** Cust Item ID:
Required Date: 3/24/2016 Req'd Qty: 1.00 ***1*** Customer:
Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

200

200

Skidtubes

Skidtubes

Skidtubes

Memo

1-Bond Web in place per OSI 015. (Ensure holes line up)

Pick:

A/R Sikaflex-291 batch: 133862Sikaflex expiry date: 16-12-10start time: 1030AM

end time: _____

2-Weld Crossbolt Spacers as per Dwg D2966 and OSI 004.

A/RAluminum Rod batch: 133862

3-Grind welds flush as per Dwg D2966

0.00

0.00

210

210

QC

Quality Control

QC10- Inspect visual per OSI004- ground welds

MemoDAS
38
9-89

MAR 16 2016

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QS1042) Approval		
Description Work Order Deviation				Disposition				Completed By	
								Lead hand / Supervisor Approval Verification	
Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐				
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐	OTHER :							
Misidentified ☐	Past Due ☐								

1. d. all 12/03/12

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QS1042) Approval	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
OTHER : ☐					

Work Order ID 142097

February 25, 2016 9:33:27 AM

142097

Page 7

Item ID: D105-674-011

Accept

N900040100Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: Skidtube with Standard Wearplates Fits LH or RH, Matte Black

Start Date: 3/14/2016 Start Qty: 1.00 ***1***

Cust Item ID:

Required Date: 3/24/2016 Req'd Qty: 1.00 ***1***

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
230	Spray Painting per QSI005 4.2	0.00							DAS 41 9-89
230						1			
SprayPaint	Memo	0.03							
Spray Painting	*****Install insert/ scrow/ washer in two place as per (NOTE 11) dwg D2966*****								16-3-30
	PRIME AS PER DWG (REF. 4.2.1.3.2) A/R PRIMER BATCH: <u>132919</u>								
	PAINT MATTE BLACK AS PER DWG (REF. QSI 005 4.3) A/R PAINT BATCH: <u>132148</u>								
240	QC14- Inspect Spray Paint	0.00							
240									
QC	Memo	0.00							
Quality Control									

1 x of 16/12/21 DAS
15
9-89

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QS1042) Approval		
Description Work Order Deviation				Disposition				Completed By	
200								Lead hand / Supervisor Approval Verification	
								QC / QA Coordinator Approval	
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐							
OTHER : ☐									

Work Order ID 142097

February 25, 2016 9:33:27 AM

142097

Page 8

Item ID: D105-674-011 Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: Skidtube with Standard Wearplates Fits LH or RH, Matte Black
Start Date: 3/14/2016 Start Qty: 1.00 *1* Cust Item ID:
Required Date: 3/24/2016 Req'd Qty: 1.00 *1* Customer:
Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
250	HandFinishing	0.00							
250	HandFinish	0.03							
Hand Finishing	Memo 1-Inspect for foreign objects as per QSI 024 2-Install Inserts, Wearplate and Cap per Dwg D2966. Insert a drop of sikaflex at insert holes before installing wearplates. Seal Aft Cap using Sikaflex. Install bushing and nut. By looking Fwd, install nut to right hand side. Pick: QtyPart NumberDescriptionBatch A/RSikaflex-291 <u>M135811</u> Sikaflex expiry date: <u>17102</u> 3-Wing Walk as per Dwg D2966 and QSI 005 4.4 Batch: <u>M136206</u>								
260	QC3- Inspect Part Finish	0.00							
260	QC	0.00							
Quality Control	Memo								

12 d Jell 16/12/21

① 11-01-04

DAS
9
9-89

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :				MRB (QS1042) Approval 	
Description Work Order Deviation				Disposition					
								Completed By	
								Lead hand / Supervisor Approval Verification	
								QC / QA Coordinator Approval	

Root Cause				FAULT CATEGORY							
Environment	☐	No Re-verification	☐	Pressure/Forced	☐	Temperature/Cure	☐	Power Loss/Surge	☐	Positioned Wrong	☐
Design	☐	Operator	☐	Bending	☐	Set-up	☐	Folio/Program	☐	Outside Dimensions	☐
Doc/Data	☐	Offset/Setup	☐	Centre Not Concentric	☐	BOM/Route	☐	Grain	☐	Over/Under tolerance	☐
Equip/Tooling	☐	Supplier	☐	Cracks	☐	Broken/Damage/Defect	☐	Weld	☐	Part Incorrect	☐
Handling/Pre	☐	Training	☐	Crimp/Kink/Ripple/Wave	☐	Inspection Incomplete/Unqualified	☐	Wrong Stock Pulled	☐	Part Lost/Missing	☐
Material	☐	Use for Testing	☐	Cuffs	☐	Contamination	☐	Out of Sequence	☐	Part Moved	☐
Internal Transport	☐	Poor Information	☐	Crushing	☐	Countersink	☐	Off-set	☐	Drawing	☐
Tribal Knowledge	☐	Rushing	☐	Heat Treat	☐	Cut Too Short	☐	Mislabeled	☐	Finish	☐
LOA	☐	Product Improvement	☐	Wave/Twist in Tube	☐	Instructions Incomplete/Unclear	☐	Fit/Function	☐	Misread	☐
Substation	☐	Process Improvement	☐	Marks/Chatter	☐	Drill Holes	☐	Misaligned/off center	☐	Turning Sequence	☐
Past Expiry Date	☐	Manufacturing Process	☐								
Misidentified	☐	Past Due	☐	OTHER :							

Work Order ID 142097

February 25, 2016 9:33:27 AM

142097

Page 9

Item ID: D105-674-011**Accept*****N900040100*****Setup Start *NS1*****Revision ID:****Stop *NS2*****Item Name:** Skidtube with Standard Wearplates Fits LH or RH, Matte Black**Start Date:** 3/14/2016 **Start Qty:** 1.00 ***1*****Cust Item ID:****Required Date:** 3/24/2016 **Req'd Qty:** 1.00 ***1*****Customer:****Reference:**

Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____
QC: _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____

Run Start *NR1*
Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

270

QC5- Inspect part completeness to step on W/O

0.00

270

QC

Memo

0.00

Quality Control

*****ENSURE INSERTS ARE AT LOCATION (6) AS PER DWG
D2966*****DAS
27
9-89

FEB 03 2017

280

Pick Kit

0.00

280

Packaging

Memo

0.00

Packaging

DAS
28
9-89DAS
27
9-89

JAN 11 2017

290

QC4- 100% Inspect kits for completeness

0.00

290

QC

Memo

0.00

Quality Control

DAS
28
9-89

FEB 03 2017

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QS1042) Approval	
Description Work Order Deviation		Disposition			
				Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
OTHER : ☐					

Work Order ID 142097

February 25, 2016 9:33:27 AM

142097

Page 10

Item ID: D105-674-011**Accept*****N900040100*****Setup Start*****NS1*****Revision ID:****Stop*****NS2*****Item Name:** Skidtube with Standard Wearplates Fits LH or RH, Matte Black**Start Date:** 3/14/2016 **Start Qty:** 1.00***1*****Cust Item ID:****Required Date:** 3/24/2016 **Req'd Qty:** 1.00***1*****Customer:****Reference:****Approvals:****Process Plan:** _____**Date:** _____**Tooling:** _____**Date:** _____**Run Start*****NR1*****QC:** _____**Date:** _____**SPC (Y/N):** _____**Date:** _____**Stop*****NR2*****Sequence ID/
Work Center ID****Operation
Description****Set Up/
Run Hours****Tool ID****Tool #****Plan
Code****Accept
Qty****Reject
Qty****Reject
Number****Insp.
Stamp**

300

0.00

300

Packaging

Packaging

Memo

0.00

Packaging

Identify and pack for shipping as per PPP D105-674-011
Location:FG071DAS 28 9-89
DAS 27 9-89
FEB 03 2017

310

QC21- Final Inspection - Work Order Release

0.00

310

QC

Memo

0.00

Quality Control

DAS 21 9-89

FEB 03 2017

MF
17-2-3

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :				MRB (QS1042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval	
Description Work Order Deviation				Disposition					
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐							
		OTHER :							

Picklist Print

February 25, 2016 9:33:30 AM

Page 1

4

Work Order ID: 142097

142097

Parent Item: D105-674-011

D105-674-011

Parent Item Name: Skidtube with Standard Wearplates Fits LH or RH, Matte Black

Start Date: 3/14/2016

Required Date: 3/24/2016

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP Rev:A04.07.07New IssueKJ/JLM IPP revB 10.02.22
per PAR 09-043 EC verified by: DD IPP Rev C 10.09.17 added
D2966-1-bent EC verified by DD IPP REV:D 13.04.08 AS PER ECN 13-
510 DD VERF:JLM IPP REV:E 14.02.05 as per dwg D2966 rev.b
DD VERF:JLM

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	-------------	--------------	---------------	----------------	--------

D2966-1-BENT

Manufactured No

130

Each

2.0000

1

1

D2966-1-BENT

Skidtube Assembly 105

**

Location

Loc Qty

Loc Code

LG002

2

110727

2

D2964

Manufactured No

140

Each

7.0000

1

1

D2964

Cap

**

Location

Loc Qty

Loc Code

LG001

7

127840

7

D2976

Manufactured No

200

Each

15.0000

1

1

D2976

Bo 105 Skidtube I Beam

**

Location

Loc Qty

Loc Code

LG002

15

112439

9

113150

6

DP 16-3-2

BE 16-03-02

DP 16-3-10

1

Picklist Print

February 25, 2016 9:33:30 AM

Page 2

Work Order ID: 142097

Parent Item: D105-674-011

Parent Item Name: Skidtube with Standard Wearplates Fits LH or RH, Matte Black

142097

D105-674-011

Start Date: 3/14/2016

Required Date: 3/24/2016

Start Qty: 1.00

Required Qty: 1.00

D2971

Manufactured No

200 Each

22.0000 1 1

D2971

Cross Bolt Spacer

**

BE16-03-14

Location

Loc Qty

Loc Code

LG001

22

108778

22

✓

D2973

Manufactured No

200 Each

29.0000 7 7

D2973

Cross Bolt Spacer

**

BE16-03-14

Location

Loc Qty

Loc Code

LG001

29

123939

29

7

D2965

Manufactured No

250 Each

81.0000 1 1

D2965

Cap

**

16/12/21

Location

Loc Qty

Loc Code

FP001

81

127852

81

B150743

xl

D2970-1

Manufactured No

250 Each

3.0000 1 1

D2970-1

Wearplate Fwd

**

16/12/21

Location

Loc Qty

Loc Code

FP002

3

125753

3

xl

Picklist Print

February 25, 2016 9:33:30 AM

Page 3

Work Order ID: 142097

142097

Parent Item: D105-674-011

D105-674-011

Parent Item Name: Skidtube with Standard Wearplates Fits LH or RH, Matte Black

Start Date: 3/14/2016

Required Date: 3/24/2016

Start Qty: 1.00

Required Qty: 1.00

D2970-3

Manufactured No

250 Each

14.0000

1 1

D2970-3

Wearplate Center

all 16/12/20

Location

Loc Qty

Loc Code

FP002

14

125323

2

xl

128917

12

D3176-1

Manufactured No

250 Each

17.0000

1 1

D3176-1

Bushing

all 16/12/20

Location

Loc Qty

Loc Code

ST020

17

108637

8

95511

9

xl

D3176-3

Manufactured No

250 Each

18.0000

1 1

D3176-3

Nut

all 16/12/20

Location

Loc Qty

Loc Code

ST020

18

108638

18

x

ALS7-1032-130

AELS8-1032-130

Purchased

No

250 Each

2,220.000

36 36

ALS7-1032-130

Rivnut

all 16/13/21

ALS4-1032-130

Location

Loc Qty

Loc Code

FG

100

M128649

100

11135442

x36

FP001

833

M128649

833

st549

1287

M128649

1287

JAS

47 16-3-20

7.89

February 25, 2016 9:33:31 AM

Shop Packet Print

Page 3

Picklist Print

February 25, 2016 9:33:31 AM

Page 4

Work Order ID: 142097

142097

Parent Item: D105-674-011

D105-674-011

Parent Item Name: Skidtube with Standard Wearplates Fits LH or RH, Matte Black

Start Date: 3/14/2016

Required Date: 3/24/2016

Start Qty: 1.00

Required Qty: 1.00

NAS1149D0332J

Purchased

No

250

Each

1,316.000

28

28

NAS1149D0332.I

Washer

**

all 16/1/16

Location

Loc Qty

Loc Code

CA

14

m129682

14

11134848

x28

FP001

44

m129682

44

GA

131

m132677

131

ST260a

600

m133988

600

ST264

527

m133498

527

2

DAS 4716 3-30 9-88

MS27039-1-08

Purchased

No

250

Each

355.0000

26

26

MS27039-1-08

Screw

**

all 16/1/16

Location

Loc Qty

Loc Code

CA

8

m128636

8

11136047

x26

FP001

257

m128636

257

GA

90

125654

2

m128636

88

Picklist Print

February 25, 2016 9:33:31 AM

Page 5

Work Order ID: 142097

142097

Parent Item: D105-674-011

D105-674-011

Parent Item Name: Skidtube with Standard Wearplates Fits LH or RH, Matte Black

Start Date: 3/14/2016

Required Date: 3/24/2016

Start Qty: 1.00

Required Qty: 1.00

MS27039-1-09

Purchased No

250 Each

265.0000

2 2

MS27039-1-09

Screw

all winter

Location

Loc Qty

Loc Code

FP001

34

18057

34

GA

36

124859

36

ST280

195

m134167

195

x2

D2972

Manufactured No

290 Each

25.0000

6 6

D2972

Bushing

JAN 11 2017

DAS 6 27 9-89

Location

Loc Qty

Loc Code

ST014

25

110766

25

Manufactured No

290 Each

12.0000

1 1

D2974

D2974

Packer Wearplate Aft

JAN 11 2017

DAS 6 27 9-89

Location

Loc Qty

Loc Code

ST014

12

126270

12

Manufactured No

290 Each

5.0000

2 2

D2975

D2975

Wearplate

JAN 11 2017

DAS 6 27 9-89

Location

Loc Qty

Loc Code

ST610

5

125245

1

126271

4

2

DAS 28 9-89

Picklist Print

February 25, 2016 9:33:31 AM

Page 6

Work Order ID: 142097

142097

Parent Item: D105-674-011

D105-674-011

Parent Item Name: Skidtube with Standard Wearplates Fits LH or RH, Matte Black

Start Date: 3/14/2016

Required Date: 3/24/2016

Start Qty: 1.00

Required Qty: 1.00

AN4-51A Purchased No 290 Each 199.0000 3 3

AN4-51A

Bolt

**

DAS 6 9-89 JAN 11 2017 DAS 27 9-89

Location	Loc Qty	Loc Code
FG	5	
122993	5	
over004	100	
m133769	50	
m134294	50	
ST340	94	
m132536	1	
m133316	93	

136015

135766

DAS 28 9-89

NAS1149D0332J Purchased No 290 Each 1,316.000 8 8

NAS1149D0332J

Washer

**

DAS 6 9-89 JAN 11 2017 DAS 27 9-89

Location	Loc Qty	Loc Code
CA	14	
m129682	14	
FP001	44	
m129682	44	
GA	131	
m132677	131	
ST260a	600	
m133988	600	
ST264	527	
m133498	527	

136015

DAS 28 9-89

Picklist Print

February 25, 2016 9:33:31 AM

Page 7

Work Order ID: 142097

142097

Parent Item: D105-674-011

D105-674-011

Parent Item Name: Skidtube with Standard Wearplates Fits LH or RH, Matte Black

Start Date: 3/14/2016

Required Date: 3/24/2016

Start Qty: 1.00

Required Qty: 1.00

MS21042L4

Purchased

No

290

Each

2,474.000

3 3

MS21042L 4

Locknut

**

DAS

6 27 9-89

JAN 11 2017

DAS 27 9-89

DAS
28
9-89

Location

Loc Qty

Loc Code

FP001

41

m133363

41

GA

456

m133769

456

ST007

1500

m134055

1500

ST303

380

m133769

380

ST305

97

m130922

97

MS27039-1-08

Purchased

No

290

Each

355.0000

8

8

MS27039-1-08

Screw

**

Location

Loc Qty

Loc Code

CA

8

m128636

8

FP001

257

m128636

257

GA

90

125654

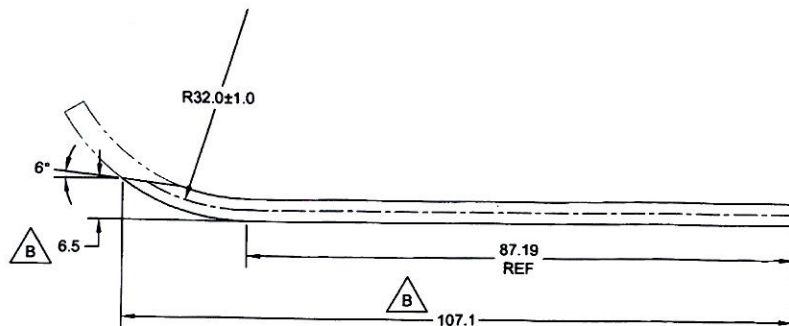
2

m128636

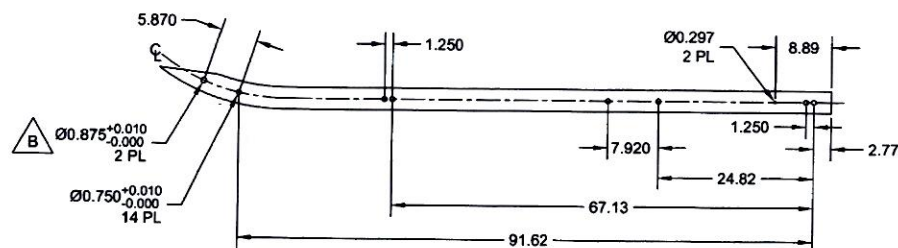
88

DAS

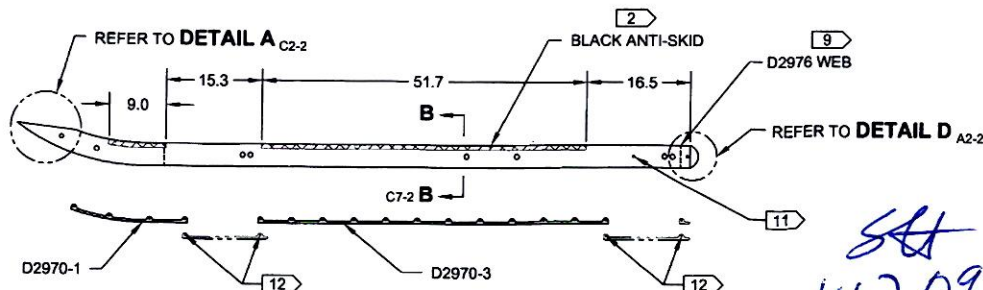
41 16-3-30
3-89



D2966-1 BENDING/CUTTING DETAIL
(MAKE FROM D2962-125 EXTRUSION)



D2966-1 DRILLING DETAIL



D2966-041 ASSEMBLY DETAIL

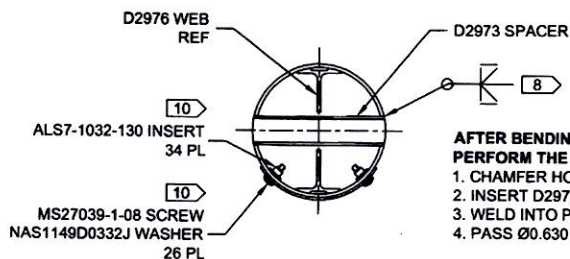
ITEM	QTY	PART NUMBER	DESCRIPTION
	X	D2966-041	SKIDTUBE ASSEMBLY
1	1	D2966-1	TUBE
2	1	D2964	CAP
3	1	D2965	CAP
4	1	D2970-1	WEARPLATE
5	1	D2970-3	WEARPLATE
6	1	D2971	CROSS BOLT SPACER
7	7	D2973	CROSS BOLT SPACER
8	1	D2976	WEB
9	1	D3176-1	BUSHING
10	1	D3176-3	NUT
11	36	ALS7-1032-130 or ALS4-1032-130 or AKS7-1032-130 or AKS4-1032-130	INSERT
12	26	MS27039-1-08	SCREW
13	2	MS27039-1-09	SCREW
14	28	NAS1149D0332J	WASHER

NOTES:

- MATERIAL: MAKE D2966-1 FROM D2962-125 EXTRUSION (INITIAL LENGTH = 125.0)
- FINISH: ACID ETCH, ALODINE PER DART QSI 005 4.1 PRIOR TO INSERTING D2976 WEB.
STANDARD: PRIME (REF. 4.2.1.3.2) AND PAINT MATTE BLACK PER DART QSI 005 4.2
OPTIONAL: POWDER COAT BLACK SANTEX (REF. 4.3.5.7) PER DART QSI 005 4.3
OPTIONAL: BLACK ANTI-SKID PAINT AS INDICATED TO 1.0 ABOVE SKIDTUBE CENTER-LINE PER DART 005 4.4.
- TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- UNITS: INCHES UNLESS STATED OTHERWISE
- BREAK SHARP EDGES: N/A
- IDENTIFICATION: N/A
- WEIGHT: 18 lb
- WELDING: PER DART QSI 004
- INSERT D2976 WEB TO LOCATION SHOWN OFF AFT END OF SKIDTUBE AND BOND WEB INTO OUTER TUBE WITH NON-STRUCTURAL SIKAFLEX-241/-291 ADHESIVE PER DART QSI 015 AFTER BENDING.
- INSTALL ALS7-1032-130 AFTER FINISH PER SECTION B-B (34 PLACES). DRILL Ø0.297 HOLES FOR WEARSHOE INSERTS. SEAL WEARPLATE SCREWS WITH SIKAFLEX-241/-291.
- INSTALL ALS7-1032-130 INSERT, MS27039-1-08 SCREW, AND NAS1149D0332J WASHER IN 2 PLACES THIS LOCATION BEFORE PRIME AND PAINT (OR POWDER COATING).
- DO NOT INSTALL MS27039-1-08 SCREWS AND NAS1149D0332J WASHERS IN THESE LOCATIONS.

B	UPDATE TO CURRENT STD; INCORP. REV. A1 AND A2: CHG COLOR TO BLACK SANTEX (ZN C3-1) AND ADD D3176-1/-3 (ZN D3-1, C1-2). PRIME AND PAINT NOW STD WHILE POWDER COAT IS OPTIONAL (ZN C3-1); Ø0.875 WAS Ø0.750 (ZN B5-2); Ø0.750 WAS Ø0.630 (ZN B6-2); TOL CHG (ZN D8-1 AND D6-1).	MB	13.12.02
A	NEW ISSUE	RF	00.03.08
REV.	DESCRIPTION	BY	DATE
DESIGN	DART AEROSPACE USA, INC		
DRAWN	KENT, WA		
CHECKED	D2966	REV. B	
MFG. APPR.		SHEET 1 OF 2	
APPROVED		SCALE	
DE APPR.	BO 105 SKIDTUBE ASSEMBLY	NTS	
DATE	13.12.02		

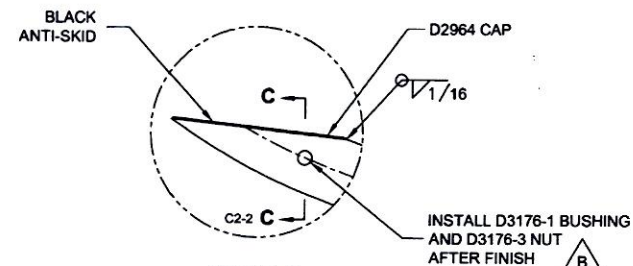
COPYRIGHT © 2000 BY DART AEROSPACE USA, INC
THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC



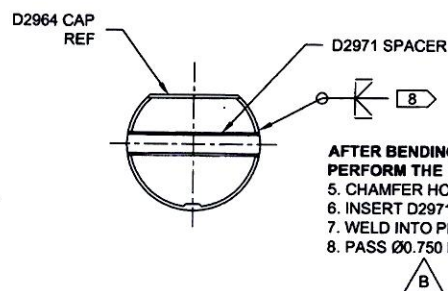
**AFTER BENDING AND DRILLING ASSEMBLY
PERFORM THE FOLLOWING FOR Ø0.750 HOLES ONLY:**

1. CHAMFER HOLE 0.030 x 45°
2. INSERT D2973 SPACER, 7 PL
3. WELD INTO PLACE AND GRIND FLUSH
4. PASS Ø0.630 DRILL TO REMOVE SPILL OVER

SECTION B-B A6-1
SCALE 6X



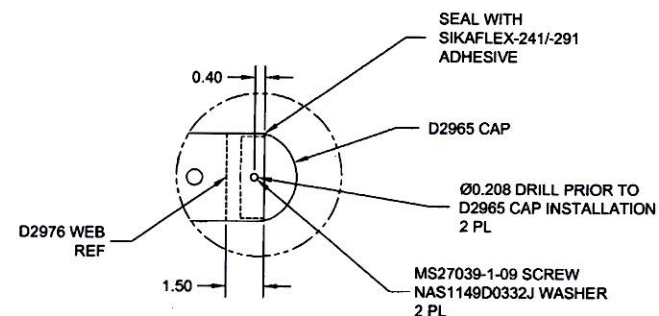
DETAIL A B7-1
SCALE 6X



**AFTER BENDING AND DRILLING ASSEMBLY
PERFORM THE FOLLOWING FOR Ø0.875 HOLES ONLY:**

5. CHAMFER HOLE 0.030 x 45°
6. INSERT D2971 SPACER
7. WELD INTO PLACE AND GRIND FLUSH
8. PASS Ø0.750 DRILL TO REMOVE SPILL OVER

SECTION C-C C2-2
SCALE 6X



DETAIL D A4-1
SCALE 4X

DESIGN		DART AEROSPACE USA, INC	
DRAWN		KENT, WA	
CHECKED		DRAWING NO.	REV. B
MFG. APPR.		D2966	SHEET 2 OF 2
APPROVED		TITLE	SCALE
DE APPR.		BO 105 SKIDTUBE ASSEMBLY	NTS
DATE	13.12.02	COPYRIGHT © 2000 BY DART AEROSPACE USA, INC THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.	

RELEASED
2014-02-03

Work Order ID 142097

Wednesday, January 11, 2017 11:51:44 AM

142097

Page 1

Item ID: D105-674-011

Accept

N900040100Setup Start ***NS1***

Revision ID:

Item Name: Skidtube with Standard Wearplates Fits LH or RH, Matte Black

Stop ***NS2***Start Date: 3/14/2016 Start Qty: 1.00 ***1***

Cust Item ID:

Required Date: 3/24/2016 Req'd Qty: 1.00 ***1***

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

Draw Nbr	Revision Nbr
D2966	Rev B

100

Document Control

0.00

100

DOCUMENT CONTROL

DC

Memo

0.00

Doc.Control -USB or Paperwork

Photocopy bluefile & type labels per PPP D105-674-011 CHG004

DAS
21
9-89

JAN 11 2017

32.3 WEIGHT AND BALANCE:

The following weight and balance information is for Dart skidtube installations only. The weight and balance of the skidtube installations that are being removed from the aircraft are the responsibility of the installer.

Installation	LONGITUDINAL			LATERAL	
	Weight	Arm	Moment	Arm	Moment
D105-674-011 SKIDTUBE INSTALLATION	19.3 lb 8.8 kg	103.9 in 2.6 m	2005.3 in lb 22.9 m kg	± 47.3 in ± 1.2 m	± 912.9 in lb ± 10.6 m kg

32.4 PART LIST

Item	-011	-041	Part Number	Description
	X		D105-674-011	SKIDTUBE INSTALLATION
	1	X	D105-674-041	REPLACEMENT SKIDTUBE
1		1	D2966-041	SKIDTUBE ASSEMBLY
2	4		105-50301	** CLAMP
3	8		LN9380M8X45	** BOLT
4	8		LN9023B8-1.4544.9	** LOCKING WASHER
5		1	D2965	* AFT CAP
6		2	MS27039-1-09	* SCREW
7		2	AN960JD10L	* WASHER
8		1	D2970-1	* WEARPLATE
9		1	D2970-3	* WEARPLATE
10	1		D2974	PACKER
11	2		D2975	WEARPLATE
12		34	AKS7-1032-130	* INSERT
13	8	26	MS27039-1-08	* SCREW
14	8	26	AN960JD10L	* WASHER
15		2	AKS7-1032-130	* INSERT
16		2	MS27039-1-08	* SCREW
17		2	AN960JD10L	* WASHER
18	3		AN4-51A	BOLT
19	6		D2972	BUSHING
20	3		MS21042L4	NUT (OR MS21042-4)

* DENOTES THAT PART IS INCLUDED WITH D2966-041 ASSEMBLY.

** FOR REFERENCE ONLY. CUSTOMER SUPPLIED.